

means (c) before activating the measurement means (b),
 such that measurement means (d) is active only during the illumination of the system by illumination means (c), and measurement means (b) is active only during the excitation of the continuous phase with evanescent wave excitation means (a).
 8. Apparatus of claim 7, further comprising:
 (g) a source of light at said wavelength,
 (h) means for directing light from said source alternately to said excitation means (a) and to said illumination means (c),
 (i) means for generating a signal having a value which is related to the intensity of light at said wavelength that is detected,
 (j) means for directing light from the system to said signal-generating means (i), and
 (k) means for detecting when the light-directing means (h) is directing light to said excitation means (a) and when it is directing light to said illumination means (c) and for alternately directing the signal from said signal-generating means (i) to said measuring means (b) whenever the light is directed to excitation means (a) and to said measuring means (d) whenever the light is directed to illuminating means (c).
 9. Apparatus of claim 8, wherein the excitation means (a) comprises an optical fiber at least a portion of which is not covered with cladding.
 10. Apparatus of claim 8, wherein the excitation means (a) comprises an optical plate.
 11. Apparatus for determining the fluorescence or absorbance of the discontinuous phase of a system having a continuous phase which also fluoresces or absorbs light when excited or illuminated by light at an optically detectable wavelength emitted by the apparatus, comprising:

(a) a source of light at said wavelength, and a plate waveguide having a face in contact with said system,
 (b) means for directing light from said source to said plate waveguide at an angle sufficiently oblique to said face to create an evanescent wave in said system, such that a first state of excitation of the system is created,
 (c) means for directing light from said source to said plate waveguide at an angle approximately perpendicular to said face, such that a second state of excitation of the system is created,
 (d) chopper means for alternately directing light from said source to said directing means (b) or said directing means (c),
 (e) means for detecting light at a wavelength emitted by the system upon fluorescence,
 (f) means for directing light from said plate waveguide at an angle approximately perpendicular to said face to said detection means (e),
 (g) means for directing light from said plate waveguide at an angle oblique to said face to said detection means (e),
 (h) chopper means for alternately directing light from said directing means (f) or said directing means (g) to said detection means (e),
 (i) means for synchronizing chopper means (d) with chopper means (h), and
 (j) means for processing the signal from detection means (e) to compare the value obtained during the first state of excitation with that obtained during the second state of excitation and to produce output related to the difference in said values.
 12. Apparatus of claim 11 wherein said means for directing light (b), (c), (f) and (g) are fiber optics.
 13. Apparatus of claim 12, wherein said means for directing light (c) and (f) together comprise a single bundle of optical fibers.

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